

EP407870 Page 1 of 2

1/1 WPAT - (C) Derwent

AN - 1991-016114 [03]

XR - 1996-051224 1997-261287 1997-418017

XA - C1991-006893

TI - Cyclo-olefin polymers - by polymerisation of poly:cyclic olefin, e.g. norbornene, using catalyst consisting of bridged metallocene and an aluminoxane

DC - A17

PA - (FARH) HOECHST AG

- (TICO-) TICONA GMBH

IN - ANTBERG M; BREKNER MJ; ROHRMANN J; SPALECK W; BREKNER M

NP - 11

NC - 12

PN - EP-407870 A 19910116 DW1991-03 24p *

AP: 1990EP-0112732 19900704

DSR: BE DE ES FR GB IT NL

- DE3922546 A 19910117 DW1991-04

AP: 1989DE-3922546 19890708

- AU9058722 A 19910110 DW1991-09

- JP03045612 A 19910227 DW1991-15

AP: 1990JP-0177608 19900706

- ZA9005308 A 19910424 DW1991-22

AP: 1990ZA-0005308 19900706

- CA2020640 A 19910209 DW1991-28

- US5087677 A 19920211 DW1992-09 11p

AP: 1990US-0548083 19900705

- EP-407870 B1 19971210 DW1998-03 C08F-032/08 Ger 28p

FD: Related to EP-690078; Related to EP-773242; Related to EP-791611

AP: 1990EP-0112732 19900704; 1995EP-0115275 19900704; 1997EP-0102182 19900704; 1997EP-0108175 19900704

DSR: BE DE ES FR GB IT NL

- DE59010777 G 19980122 DW1998-09 C08F-032/08

FD: Based on EP-407870

AP: 1990DE-5010777 19900704; 1990EP-0112732 19900704

- ES2113343 T3 19980501 DW1998-24 C08F-032/08

FD: Based on EP-407870

AP: 1990EP-0112732 19900704

- JP11315124 A 19991116 DW2000-05 C08F-232/00 16p

AP: 1990JP-0177608 19900706; 1999JP-0020461 19900706

PR - 1989DE-3922546 19890708

CT - DE3835044; EP-283164; EP-291970; EP-304671; EP-358103

A3...9126; NoSR.Pub

IC - C08F-032/08 C08F-232/00 C08F-004/62 C08F-004/642 C08F-210/00
C08G-061/08

AB - EP-407870 A

Cycloolefin polymers (I) are produced by polymerisation of 0.1-100 wt.% monomer(s) of formula (IIA-D), 0-99.9 wt.% cycloolefin of formula (III) and 0-99.9 wt.% acyclic 1-olefin of formula $R_9R_{11}=CR_{10}R_{12}$ (IV) in soln., suspension, melt or gas phase at -78 to 150 deg.C. and 0.5-64 bar in the presence of a catalyst consisting of metallocene as transition metal component and an aluminoxane of formula $(R_{13})_2Al-O-(Al(R_{13})O)_n-Al(R_{13})_2$ (linear) or $-(Al(R_{13})O)_{n+2}-$ (cyclic). The novelty is that the metallocene has the formula (V). $R_1-R_{12} = H$ or 1-8C alkyl; $m = 2-10$; $R_{13} = 1-6C$ alkyl, Ph or benzyl; $n = 2-50$; $M_1 = Ti, Zr, Hf, V, Nb$ or Ta ; $R_{14}, R_{15} = H, hal, 1-10C$ alk(ox)yl, 6-10C aryl(oxy), 2-10C alkenyl, 7-40C aralkyl or alkylaryl, or 8-40C arylalkenyl; $R_{16}, R_{17} =$ mono- or poly-nuclear hydrocarbon residue which can form a sandwich structure with M_1 ; $R_{18} = -MR_{19}R_{20}R_{21}-, MR_{19}R_{20}-C(R_{21})_2-, -CR_{19}R_{20}-, -O-MR_{19}R_{20}-CR_{19}R_{21}-, =BR_{19}, AR_{19}, -Ge-, -Sn-, -O-, -SO-, -SO_2-, -NR_{19}-, -CO-, -PR_{19}-$ or $-P(O)R_{19}-$ (with $R_{19}, R_{20}, R_{21} = H, hal, 1-10C$ alkyl, alkoxy or fluoroaryl, 2-10C alkenyl, 7-40C aralkyl or alkaryl, or 8-40C arylalkenyl, or possibly forming a ring with the bonding atoms); $M = Si, Ge$ or Sn .

- USE/ADVANTAGE - Enables the prodn. of (I) with viscosity no. above 20 cm³/g and T_g above 100 deg.C., with no ring-opening; the polymers are soluble, e.g. in decanhydronaphthalene or toluene and can be extruded or injection moulded to produce film, pipe, fibre, rod; applications are, e.g. lenses, prisms, video discs, optical fibres. etc.. (24pp Dwg.No.0/0)

MC - CPI: A02-A06C A04-G

UP - 1991-03

UE - 1991-04; 1991-09; 1991-15; 1991-22; 1991-28; 1992-09; 1998-03; 1998-09;
1998-24; 2000-05